# Energy Movement Quiz Answer Key

# Weatherization Energy Auditor – Single Family

DISCLAIMER: This quiz is intended for use as an interim review. Distribute to students after training the associated curriculum chapter, or the next day, to refresh the lesson. Being publicly available renders this specific quiz invalid for use as a formal assessment tool for accreditation.  See Tier 2.14(b) IREC 01022 ISPQ accreditation standard.

Learning Objectives

By attending this session, participants will be able to:

* Discuss the principles of energy and energy movement.
* List the three methods of heat transfer.
* Differentiate the difference between thermal and air barriers and the proper location of each.
* Recognize the forces that cause air leakage.
* Explain the connection between air leakage, energy waste, and moisture problems.
* Explain how air ducts affect the pressure balance within the home.

Questions and Rationale

**Objectives:**

* Discuss the principles of energy and energy movement.
* List the three methods of heat transfer

**Question:**

1. The type of heat transfer that does not require physical contact or a medium is:

1. Conduction.
2. Convection.
3. Radiation.

**Rationale:**

**A** is incorrect because conduction is the mode of transfer through a material.

**B** is incorrect because convection is the mode of heat transfer through air.

**C** is correct because radiation can transfer through a vacuum.

**Objectives:**

* Recognize the forces that cause air leakage
* Explain how air ducts affect the pressure balance within the home.

**Question:**

2. An example of a an air leakage driving force caused by a temperature difference between the inside and outside of a home is:

1. Wind effect.
2. Stack effect.
3. Fan effect.

**Rationale:**

**A** is incorrect because wind is a function of pressure difference caused by wind.

**B** is correct because stack effect is a function of temperature difference between inside and outside during the heating season.

**C** is incorrect because fan effect a function of pressure difference caused by fans.

**Objective:**

* Differentiate the difference between thermal and air barriers and the proper location of each.

**Question:**

3. The air barrier in most homes is made up of the:

1. The roof deck.
2. The insulation blanket.
3. The drywall.

 **Rationale:**

**A** is incorrect because the roof deck is adjacent to a cold attic.

**B** is incorrect the insulation blanket should be on the cold side of the air barrier.

**C** is correct because the drywall is the primary surface that separates conditioned from unconditioned spaces.

**Objective:**

* Differentiate the difference between thermal and air barriers and the proper location of each.

**Question:**

4. A well-sealed air barrierplays a major role in:

1. Insulating the thermal envelope.
2. Retarding the movement of heat and moisture through the building.
3. Providing a vapor retarder.

**Rationale:**

**A** is incorrect because insulation’s main function is to slow down heat transfer by conduction.

**B** is correct because moisture vapor is carried by convective air currents, which accounts for the majority of heat loss in homes.

**C** is incorrect because the function of a vapor retarder is to retard the flow of moisture by diffusion.